Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	ET-Docket No. 93-62
Guidelines for Evaluating the Environmental	)	and Report and Order FCC 96-326
Effects of Radiofrequency Radiation	)	

The Secretary
Federal Communications Commission
1919 M Street, N.W. Room 222
Washington, D.C. 20554

DOCKET FILE COPY ORIGINAL

To: The Commission

Reply of the Ad-Hoc Association of Parties Concerned About the Federal Communication Commission's Radio Frequency ("RF") Health and Safety Rules ("Assoication") to comments by the National Association of Broadcasters ("NAB") submitted concerning Petitions for Reconsideration of FCC 96-326 in ET-Docket 93-62

1. Introduction: Herein the Association submits its reply to comments submitted by the National Association of Broadcasters ("NAB") concerning its response to Petitions for Reconsideration of Commission Final Rule and Order ("R&O") FCC 96-326 filed in the above docket, and such reply is being filed in a timely manner in accordance with 47 CFR Part 1 §§ 1.4(b)(1) and 1.429(g).

NAB writes, *"Consistent with the comments submitted by NAB, EEA, and the vast majority of other parties in this proceeding, we urge the Commission to revise the RF radiation regulatory scheme adopted in the Report and Order to one which incorporates, in its entirety and unadulterated by portions of other RF radiation standards, the 1992 American National Standards Institute ("ANSI")/Institute of Electrical and Electronic Engineers ("IEEE") RF radiation exposure standard."* [referring in IEEE C95.1-1991]

The Association will show that NAB has erred in his support for replacing the Commission's exposure criteria and replace it with IEEE C95.1-1991 ("IEEE 1991"), and that this

may be due to misunderstandings. Further, due to comments by the Association in its petition of reconsideration (called #1), the responses of David Fichtenberg (called #2) to the petition of the Cellular Phone Taskforce, the response of David Fichtenberg (called #3) to the petitions of Ameritech and Electromagnetic Energy Association ("EEA"), and the responses of David Fichtenberg (called #4) to the Department of Defense, U.S. West, and AT&T, the Commission must recognize that its exposure criteria need to be more restrictive and that a rule in its standard should be that RF exposures should be kept as low as reasonably achievable.

Insofar as the Association can submit only one reply to NAB, and to other petitioners, the Association has carefully studied the response of NAB regarding replacing the Commission's criteria with IEEE 1991, and the Commission is encouraged to apply these comments to other petitions as it seems fit. Accordingly copies of this reply shall be served on all parties for whom an address has been provided.

In its comments NAB provides no reason showing how the public interest would be served by the Commission making the requested change. Indeed, the only reason at all given is that many telecommunications companies are so requesting. One reason for this may be found in the Petition of the Department of Defense ("DOD") where it emphasizes that the difference between the Commission's criteria and that of IEEE 1991 is that IEEE 1991 allows less restrictions at the higher frequencies above 1500 MHz. Indeed, DOD states, *"The impact may be quite different for operations at the higher microwave frequencies where application of FCC's adopted NCRP [National Council of Radiation Protection and Measurement 1986 RF standard] limits would mean a one-half and one tenth reduction, respectively, over the power density levels permitted for controlled and uncontrolled environments given in ANSI/IEEE C95.1-1992."*

Thus, there is a significant operation advantage to telecommunications companies to have the Commission adopt IEEE 1991 since it allows higher exposures of the general public and up to ten fold that allowed by the current Commission criteria. Hence, shear numbers of companies request less restrictive limits whereby the general public can be exposed up to ten fold higher does not provide evidence that such an up to ten fold increase is in the public interest nor scientifically justifiable, being consistent with sound scientific studies.

It is noted the Commission rejected many elements of IEEE 1991 (e.g. exposure criteria above 1500 MHz) upon advice from federal health agencies. In contrast, the Department of Defense ("DOD"), U.S. West, the Electromagnetic Energy Association ("EEA"), and AT&T requested the Commission adopt in its entirely IEEE 1991 in lieu of the Commission's decision. .

Comments supporting requests to adopt IEEE did not address any of the weaknesses and internal inconsistencies of this standard noted by the Association in #1,#2, #3, or #4 or by the Cellular Phone Taskforce. Indeed, one major weakness of IEEE 1991 was that it claimed below its limits there were no harmful effects. However, in #1-#4 the Association referred to papers in IEEE 1991 References and included in IEEE 1991 'Final List of Papers Reviewed For IEEE C95.1-1991' ("IEEE 1991 Final List") where many adverse effects were found among papers were stated in IEEE 1991 to be of high scientific quality, with reliable data and suitable for standard setting. In #1-#4 O.P. Gandhi, Co-chairman of the IEEE 1991 committee, advises against adopting for the higher frequencies (above 1500 MHz) the very limits that IEEE 1991 adopted, e.g. contrary to its co-chairman's recommendations.[see #1 at 12, footnote 64, 113] Association also reported another IEEE 1991 paper where at limits adopted by IEEE 1991 it was reported that in laboratory animals such exposure "induced significant leucocytosis, lymphocytosis, and neutrophilla." [in #1 at footnote 117] These findings serious and justify doubts about the protection of IEEE 1991 at the higher frequencies where its limits are as much as 10 fold more than that adopted by the Commission; moreover, since these papers were among those reportedly reviewed for determining IEEE 1991, it appears that IEEE 1991 is inconsistent with the papers reviewed to determine this standard. Indeed, altogether six IEEE 1991 Final List or Reference papers were noted in #1 [footnote 113,114,115,116, 117, 64] by the Association which suggested adverse effects at levels within those permitted by IEEE 1991, but not permitted by the criteria adopted by the Commission which deferred to the recommendation of the U.S. Environmental Protection Agency ("EPA"). Indeed, the Association suggested the findings in the above papers were among the reasons for which EPA reported, "EPA recommends against adopting [IEEE 1991]."

Moreover, to help clarify the basis of the EPA finding that claims made by IEEE 1991 that its limits were "safe for all," the Association reported on an additional fourteen (14) IEEE 1991 Final List papers which report adverse effects/behavioral disruptions in laboratory animals at levels below the IEEE 1991 hazard threshold used to derive exposure criteria [see #1 at page 10 to 12].

In addition, the Association explicitly noted errors in the text of IEEE 1991. IEEE 1991 text reports the magnetic field limits would result in being less than 5% of the allowed specific absorption rate of 0.08 Watts of RF power/kilogram of body weight (0.08 W/kg), but the Ad-Hoc Association reported this was an error and that the correct percentage could be as high as 13.75% at 3 MHz.

Furthermore, the Association noted that the IEEE 1991 section "Relaxation of Limits of Partial Body Exposure" contained invalid results, and results which were inconsistent with the ANSI "Safe Use Of Lasers" standard which IEEE 1991 claimed compatibility. For example, the "Safe Use of Lasers" requires that at a frequency of 300 GHz when the partial body area exposed is greater than 1000 square centimeters (cm^2) (about 1 square foot), that the exposure level may be no more than 10 milliwatts per square centimeter (10 mW/cm^2); yet the Association noted that IEEE 1991 allows, for the same frequency, partial body exposure of workers to levels which may be as high as 400% of that allowed by ANSI "Safe Use Of Lasers," and IEEE 1991 allows partial body exposures of the general public ("uncontrolled") which may be as high as 200% of that allowed by ANSI "Safe Use of Lasers."

Moreover, the Association was critical of the process by which IEEE 1991 was developed, and presented evidence that the balloting committee was not properly balanced, that balloting members found weak justifications were given for increasing exposures at the higher frequencies, and that important papers on pulsed RF effects were "pushed aside," plus other deficiencies.

Finally, the Association noted a recent paper by O.P.Gandhi where based on the Finite-Difference Time Domain dosimetry method, results implied that IEEE 1991 power density limits were about 2.5 times too high, and thus current power density limits in a wide frequency range

needed to be divided by a factor of 2.5.[#1 at 14]. Also note there was a typographical oversight and the line,

"2. Avg SAR of 1 year old (est.) 0.0804 0.0846 0.0842 0.0825 W/kg" should be ignored.

Likewise in #4 at page 3 item 5.2 behavioral disruption in a primate study was 2.5 W/kg, and not in the range of 3.2 W/kg to 4 W/kg as erroneously reported IEEE 1991. Also, in #2 at page 8, it was reported IEEE 1991stated, *"Studies such as those indicating effects, in vitro, on cell function were considered transient and reversible with no detrimental health effects,"* which is a criteria for eliminating consideration of studies contrary to good science, especially where such studies included a paper where the author concluded, *"it is almost certain that these effects would be disruptive of ongoing information handling processes if they were to occur in an intact nervous system."*

Given all of the above criticisms, no experts, companies or associations supporting IEEE 1991 have attempted to show where #1-#4 has erred. Rather there is total silence on these points. Consequently, this suggests the points are valid and there is no way to defend IEEE 1991 concerning them. Hence, if in the future, parties come to the Commission to find fault with the criticisms above, the Commission is strongly requested to have all criticism put in writing with a copy sent to the Association for its response. Otherwise, due process will not be followed, insofar as no experts or parties took the opportunity to openly and formally respond to the criticisms in #1-#4. This makes it all the more imperative for the Commission to seek the assistance of the federal health agencies in validating claims and in establishing their significance and policy implications.

For example, in these two just mentioned pleadings were studies indicating a threshold of behavioral disruption occurs at least below 0.7 W/kg. The four studies referenced by IEEE 1991 [in page 28 of IEEE 1991] upon which IEEE 1991 derives its hazard threshold had among each of its co-authors either J.A. D'Andrea or J.O. de Lorge, and subsequently these two authors co-authored a review article in which they conclude, that "a threshold for significant behavioral effects at 2450 MHz" is below 0.7 W/kg (and 0.7 W/kg is 17.5% of 4 W/kg). [see #1 footnote 133]. Since the authors did not include some IEEE 1991 Final List papers reporting disruption

of learned behavior or learning of new behavior at even lower exposure levels, there is evidence that the threshold is even lower than 0.7 W/kg. Thus there is reasonable evidence to indicate that the threshold for behavioral disruption is at least as low as 0.7 W/kg then this would result in reducing the Commission's exposure criteria to 17.5% of their current values, assuming the current 'safety factor' of 50 is maintained.

Likewise, having the federal health agencies report that the FDTD method of Gandhi noted above justifies further reducing exposure limits by a factor of 2.5, would result in Commission exposure criteria which are 7% of their current power density values. And while this reduction may seem dramatic, it is based on recent scientific studies using dosimetry methods the Commission has found valid (FDTD), and on studies of disruption of learned behavior or learning of new behaviors that are among the Final List papers or are more recent papers by authors who are among those with papers among the Final List papers, and thus presumed to have done sound studies.

Please note the above approach toward determining if exposure criteria should be at some specific more restrictive value is different than setting a standard below which some safe level is derived. For example, FDA wrote, *"Although the current state of scientific knowledge does not enable us to offer a specific alternative to the exposure levels in the new standard (IEEE 1991), we do not believe this standard addresses the issue of long term, chronic exposures to RF fields."* [letter of L.Gill of Nov. 10, 1993 to the Commission]. Since few chronic studies have been done, it follows the FDA could not offer a standard where it could identify risks for which the standard would offer protection.

In contrast, the request of the Association is different. The Association requests the federal health agencies would review almost exclusively acute studies in #1-#4 and from the Cellular Phone Taskforce and to determine whether sufficient adverse or behavioral disruptions occur above a certain exposure, in W/kg, to determine that at least the threshold for adverse effects is "this low or lower." Thus, the Commission would report to the public that there were a sufficient number of studies from the IEEE 1991 Final List and other studies for the federal health agencies (or other health and health policy groups) to determine that a threshold for adverse

effects is "at least as low as" the hazard value selected (recognizing it probably is not a threshold). Applying a safety factor of at least 50 would be expected since between 50 to 100 is the range EPA has given as reasonable for safety factors, with 100 being traditionally used [Federal Register, Vol. 51, No. 146, Federal Radiation Protection Guidance, beginning at page 27318]. Since, the levels identified are likely not thresholds, a safety factor of 200 seems appropriate, and since the typical range of safety factors is from 10 to 1000 [also in the same Fed. Reg. EPA guidance]; thus based on the Final List study with the lowest exposure level of 10 microwatts per square centimeter [Belokrinistskiy 1982 Ad-Hoc Petition at page 12]

One reason the Association is confident of its findings is that it has taken notice of the EEA petition which states, *"For more than twenty years, DOD has conducted an extensive research program on the potential effects of exposure to radio-frequency energy."* [EEA petition at 12]. Therefore, it is with much respect that the Association read the findings of Dr. Cletus Kanavy, the chief of the biological effects group of the Phillips Laboratory's Electromagnetic Effects Division at Kirkland Air Force Base, New Mexico, who reports, *"A large amount of data exists, both animal experimental and human clinical evidence, to support the existence of chronic, nonthermal effects* [and including] *behavioral aberrations, neural network perturbations, fetal tissue damage, suppression of the endocrine and immune systems."* [Microwave News September/October 1993]. It is also with much respect that the Association read a North Atlantic Treaty Organization (NATO) Advanced Science Series report 274 [Plenum Press 1995], of whose three editors, two were from the Radiofrequency Radiation Division of Brooks Air Force Base, Texas. In one of the articles it was reported, *"Biological effects have been observed at RF and MW fields amplitude modulated at ELF at SAR levels below thresholds for effects for continuous waves. Many of these effects are the same or similar to effects observed for ELF electric and magnetic fields.....the potential importance of these effects should not be overlooked for two reasons. First, the scientific evidence with respect to health effects of ELF fields while still inconclusive, is suggestive of possible detrimental effects. Second, until the recent developments in digital communication, hardly any situations of human exposure to*

RF/MW fields deeply amplitude modulated at ELF occurred. This situation is going to change rather rapidly with expansion of wireless digital communication." [see footnote #38 in Association petition].

Also, the Department of Defense sponsored the study by Gandhi [Department of the Army, Contract # DAMD17-90-M-SA49] noted earlier that implies IEEE 1991 power density limits are too high. Finally, the study by Gandhi on "The Absorption of Millimeter Waves by Human Beings and Its Biological Implications," noted in the Ad-Hoc Association's petition [at page 12 item 14.2.14, footnote 113] was supported by the U.S. Air Force School of Aerospace Medicine of Brooks Air Force Base, Texas [reported in article]. Similarly, other Final List papers indicating people will feel uncomfortably warm at the IEEE 1991 10 mW/cm^2 or which showed adverse effects below 4 W/kg were also sponsored all or in part by the Department of Defense [and include at least studies in Association petition at footnote 113, 114, 116, 117 concerning adverse/'too warm' effects at millimeter frequencies and 84, 85, 88 concerning behavioral disruption of learned tasks or learning of tasks at levels below the hazard threshold of IEEE 1991]. Thus, the above reports supported by the Department of Defense appear to support the Commission's rule of not including limits that claim they are safe for all, and thus argue against adopting IEEE 1991.

Likewise, NBA may have misunderstood U.S.West stating FDA and OSHA supported IEEE 1991, while in fact there was conditional support with FDA against the low power device exclusion and troubled by the IEEE 1991 claim of being safe for all. OSHA reported, "The possible implication that employees may be subjected to a higher level of risk because they "are aware of the potential for exposure as a concomitant of employment" is unacceptable to OSHA. .

Also, were NBA to learn that 2 of the 3 balloting members from federal health agency voted against adopting 1992 ANSI/IEEE because "important papers were brushed aside" and that "weak justifications" were given for increasing exposure at the higher frequencies [see Association petition at page 5] then it may further understand that there is not the consensus some have reported concerning this standard.

As noted in the foregoing, there were a number of studies amongst the 1991 Final List papers that were referenced in the record of this proceeding as well as other papers, including very recent papers which were not available the Commission. Consequently, having been informed of these adverse effects the Commission must re-evaluate its exposure criteria and after receiving the confirmations note above from the federal health agencies and other health and public policy groups, to proposed more restrictive limits, for the population and for workers, including the special NCRP modulation criteria and OSHA RF health and safety program elements, as requested by the Association it its petition.

Finally, given all of the above, the Commission must adopt the request in the petition of the Association to state in its rules that given the reported adverse effects at very low levels, that exposure levels of radio frequency must be kept "as low as reasonably achievable." {Association petition at page 18]. Similarly, the Commission should follow the NIOSH directive to the Commission that, "The standard should note that other effects may be associated with RF exposure [other than "adverse effects caused by body heating"] and that exposure should be minimized to the extent possible. To be consistent with federal radiation protection standards [10 CFR §20.1(c)(1983) and to be consistent with the State of Washington law [ESBB 2828 1996 session] the Commission must include in its standard the rule that radiation exposures (whether ionionzing or nonionizing) should be kept "as low as reasonably achievable while still allowing the operation of these networks." [see D. Fichtenberg Opposition to Amnestied and EEA at page 22, 23]. By so ruling the Commission will provide states and local jurisidictions a basis within the Commission's rules to seek ways to to keep exposures low as thus serve the public interest. Such a ruling also sends a powerful message to local jurisdictions and the public that they should cooperate with operators to help site transmitters so the "as low as reasonably achievable" standard can be reached, e.g. to cooperate in seeking to keep transmitters high above the population and from them. Such a ruling also establishes the need for industry to continue to research into health effects and how to reduce or mitigate exposure. If the Commission were to not so rule, then it would be acting contrary to its own policies of deferring to federal health agencies, here NIOSH, and it would be acting without reasonable care in informing the public and

local jurisidictions of how to protect the public health from undue risk, and it would falsely be sending the message to operators that they need not be concerned how high exposure is or where transmitters are placed as long as exposures are below some arbitrary value - this also does not show due care. Consequently, not only would such refraining from establishing this standard not be in the public interest, but may put the Commission unduly in a position for a tort liability action -especially given the evidence and actual studies noted by the Association, Alan Golden, the Cellular Phone Taskforce and D. Fichtenberg in its various petitions, comments, and reply comments.

Finally, to even go further and consider removing state tort liability law, preempting that which Congress determined should be within state jurisdiction would also act contrary to providing a motivation or means of keeping exposures as low as reasonably achievable. Lastly, the entire implementation program of the Commission's RF exposure criteria must be rigorous, assuring that all facilities meet the adopted standard - regardless of when they were licensed, and assuring that buildings nearby transmitters will not receive out-of-compliance exposure (now the Commission exemption rules avoid considering closeness of buildings and only consider closeness to ground as noted by the Association in its petition at page 5] Moreover, all of the other implementation procedures requested by the Association in its petition and in D. Fichtenberg's comments on the petition of the Cellular Phone Taskforce are needed to assure exposures will be kept as low as reasonably achievable, and that Commission rules results in the Commission and its licensees "fully informing the worker and the public of the limits of knowledge," as required by the NCRP standard recommended to the Commission by EPA [NCRP 1986, 17.3]

Respectfully submitted,

David Fichtenberg
Spokesperson for the Association of Parties Concerned About the Federal Communication Commission's RadiofrequencyHealth and Safety Rules Dated: October 18, 1996

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Submitting one original and fourteen copies to the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington D.C., 20554 and one copy to each of the parties listed on the following page.

Certificate of Service

I, David Fichtenberg, hereby certify that on this, the 18th day of October, 1996, a copy of the foregoing were mailed first class, postage prepaid to the following:

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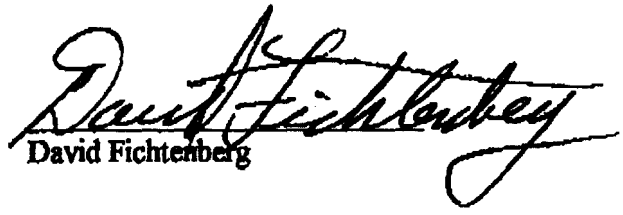

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